1. Solve the equation for x and choose the interval that contains x (if it exists).

$$20 = \ln \sqrt[6]{\frac{22}{e^{8x}}}$$

A. $x \in [-5.4, -3.4]$

B. $x \in [-3.2, -1.4]$

C. $x \in [13, 15.7]$

D. There is no Real solution to the equation.

E. None of the above.

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2. Which of the following intervals describes the Range of the function below?

$$f(x) = -\log_2(x + 6) - 1$$

A. $[a, \infty), a \in [-9.2, -5.9]$

B. $(-\infty, a), a \in [-5.2, -0.2]$

C. $(-\infty, a), a \in [-0.1, 4.6]$

D. $[a, \infty), a \in [4.7, 10]$

E. $(-\infty, \infty)$

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3. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$5^{-4x-2} = \left(\frac{1}{49}\right)^{-2x+4}$$

A. $x \in [0.4, 2.6]$

B. $x \in [5.2, 7.2]$

C. $x \in [-2, 0]$

D. $x \in [-3.9, -2.4]$

E. There is no Real solution to the equation.

4. Which of the following intervals describes the Range of the function below?

$$f(x) = e^{x-7} - 1$$

A. $(a, \infty), a \in [-3.6, 0]$

B. $(-\infty, a), a \in [0.3, 1.5]$

C. $(-\infty, a], a \in [0.3, 1.5]$

D. $[a, \infty), a \in [-3.6, 0]$

E. $(-\infty, \infty)$

5. Solve the equation for x and choose the interval that contains x (if it exists).

$$25 = \sqrt[3]{\frac{29}{e^{4x}}}$$

A. $x \in [0.76, 1.7]$

B. $x \in [-1.12, -0.65]$

C. $x \in [-20.26, -19.24]$

D. There is no Real solution to the equation.

E. None of the above.

6. Which of the following intervals describes the Domain of the function below?

$$f(x) = -\log_2(x + 1) + 8$$

A. $(a, \infty), a \in [-1.5, -0.8]$

B. $(-\infty, a], a \in [-8.6, -7.2]$

C. $(-\infty, a), a \in [0.7, 4.1]$

D. $[a, \infty), a \in [6.3, 8.2]$

E. $(-\infty, \infty)$

7. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_4(2x+6)+4=3$$

A. $x \in [-2.8, -1.67]$

B. $x \in [2.81, 4.24]$

C. $x \in [28.12, 29.65]$

D. $x \in [-2.96, -2.79]$

E. There is no Real solution to the equation.

8. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$2^{-3x-5} = 27^{-2x+3}$$

A. $x \in [-9, -6.5]$

B. $x \in [1.8, 5]$

C. $x \in [-14.2, -11.5]$

D. $x \in [1.3, 2.4]$

E. There is no Real solution to the equation.

9. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_4(2x+7)+6=2$$

A. $x \in [2.5, 12.5]$

B. $x \in [119.5, 129.5]$

C. $x \in [-5.5, -1.5]$

D. $x \in [127.5, 133.5]$

E. There is no Real solution to the equation.

10. Which of the following intervals describes the Range of the function below?

$$f(x) = -e^{x+8} - 9$$

A. $(-\infty, a], a \in [-11, -2]$

B. $(a, \infty), a \in [7, 13]$

C. $(-\infty, a), a \in [-11, -2]$

D. $[a, \infty), a \in [7, 13]$

E. $(-\infty, \infty)$